WHAT IS CLAIMED IS:

1. A communication terminal apparatus, comprising a plurality of layers hierarchically classified depending on
5 different processing functions, said apparatus comprising:

a processing unit belonging to said predetermined layer;

a plurality of processing units belonging to a lower layer among said predetermined layers; and

10 an operation control unit for controlling operation of said plurality of processing units belonging to said predetermined layer, said operation control unit belonging to said predetermined layer, wherein:

said processing unit belonging to said predetermined
15 layer can selectively use said plurality of processing units belonging to said lower layer through control of said operation control unit belonging to said predetermined layer.

20 2. The communication terminal apparatus according to claim 1, wherein there is provided an operation control unit for controlling operation of each of said plurality of processing units belonging to said lower layer, said operation control unit belonging to said lower layer and
25 said operation control unit belonging to said lower

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layer notifies, to the operation control unit belonging to said lower layer, availability information indicating whether each of said plurality of processing units is available or not.

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3.   The communication terminal apparatus according to claim 2, wherein said operation control unit belonging to said predetermined layer has information requesting means for requesting notification of said availability

10   information to said operation control unit belonging to said lower layer.

4.   The communication terminal apparatus according to claim 2, wherein said operation control unit belonging to

15   said predetermined layer comprises information storage means for storing said availability information.

5.   The communication terminal apparatus according to claim 2, wherein, when said operation control unit

20   belonging to said predetermined layer receives notification of said availability information from said operation control unit belonging to said lower layer, said operation control unit refers to said availability information and controls selective use of one or more of said available

25   processing units belonging to said lower layer by said

processing unit belonging to said predetermined layer.

6. The communication terminal apparatus according to claim 2, wherein said apparatus comprising:

5   a processing unit belonging to a upper layer of said predetermined layer;

an operation unit for controlling operation of said processing unit belonging to a upper layer of said predetermined layer, said operation control unit belonging

10   to said upper layer; and

said operation control unit belonging to said predetermined layer notifies said availability information to said operation control unit belonging to said upper layer.

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7. The communication terminal apparatus according to claim 6, wherein said processing unit belonging to said predetermined layer comprises data distributing means for distributing one supplied data and for outputting a

20   plurality of data; and

said data distributing means divides said one data supplied from said processing unit belonging to said upper layer through the control of said operation control unit belonging to said predetermined layer, and a plurality of

25   data after dividing are selectively supplied to said

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plurality of processing units belonging to said lower layer.

8. The communication terminal apparatus according to claim 7, wherein said operation control unit belonging to said predetermined layer controls a distribution ratio of a plurality of data after said dividing supplied to one or more of the available processing units belonging to said lower layer by said data distributing means.

9. The communication terminal apparatus according to claim 1, wherein said apparatus comprising an operation control unit for controlling operation of each of said plurality of processing units belonging to said lower layer, said operation control unit belonging to said lower layer; and

said operation control unit belonging to said lower layer notifies, to said operation control unit belonging to said predetermined layer, availability information to indicate whether it is possible or not to use each of said plurality of processing units belonging to said lower layer, band information to indicate a band securable in communication using each of said plurality of processing units belonging to said lower layer, and route information to indicate a connection target connectable in the communication using each of said plurality of processing

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units belonging to said lower layer when said processing unit is available.

10. The communication terminal apparatus according to claim 9, wherein said operation control unit belonging to said predetermined layer comprises information requesting means for requesting notification of said band information and/or said route information in addition to said availability information to said operation control unit belonging to said lower layer.

11. The communication terminal apparatus according to claim 9, wherein said operation control unit belonging to said predetermined layer comprises information storage means for storing said band information and/or said route information in addition to said availability information.

12. The communication terminal apparatus according to claim 9, wherein said operation control unit belonging to said predetermined layer controls selective utilization of one or more of said available processing units belonging to said lower layer by said processing unit belonging to said predetermined layer by referring to said band information and/or said route information in addition to said availability information when said availability information

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is notified from said operation control unit belonging to said lower layer.

13. The communication terminal apparatus according to claim 9, wherein said apparatus comprises:

a processing unit belonging to a upper layer of said predetermined layer;

an operation control unit for controlling operation of said processing unit belonging to a upper layer of said predetermined layer, said operation control unit belonging to said upper layer; and

said operation control unit belonging to said predetermined layer notifies said band information and/or said route information in addition to said availability information to said operation control unit belonging to said upper layer.

14. The communication terminal apparatus according to claim 13, wherein said processing unit belonging to said predetermined layer comprises data distributing means for distributing a single supplied data and for outputting a plurality of data; and

said data distributing means divides said single data supplied from said processing unit belonging to said upper layer through control of said operation control unit

belonging to said predetermined layer and supplies a
plurality of data after dividing to said plurality of
processing units belonging to said lower layer.

5   15. The communication terminal apparatus according to
claim 14, wherein said operation control unit belonging to
said predetermined layer refers to said band information
and/or said route information, and controls distribution
ratio of a plurality of data after said dividing to be
10   supplied by said data distributing means to one or more
available processing units belonging to said lower layer.

16. The communication terminal apparatus according to
claim 6 or 13, wherein said processing unit belonging to
15   said predetermined layer comprises data unifying means for
unifying a plurality of supplied data and for outputting
one data; and
said data unifying means unifies said plurality of
data supplied from said plurality of processing units
20   belonging to said lower layer and supplies one data after
said unification to said processing unit belonging to said
upper layer.

17. The communication terminal apparatus according to
25   claim 16, wherein said operation control unit belonging to

said predetermined layer controls sequence of a plurality

of data after dividing as outputted from said data

distributing means or controls sequence of a plurality of

data from said lower layer unified by said data unifying

5   means.

18. The communication terminal apparatus according to

claim 1, wherein said predetermined layer is one or more

selected from a data link layer of the layer 2 defined in

10   an OSI reference model, a network layer of the layer 3, a

transport layer of the layer 4, a session layer of the

layer 5 and a presentation layer of the layer 6.

19. A communication control method in a communication

15   terminal apparatus, comprising a plurality of layers

hierarchically classified depending on different processing

functions, wherein:

an operation control unit belonging to a predetermined

layer among said plurality of layers selectively utilizes a

20   plurality of processing units belonging to a lower layer of

said predetermined layer and performs communication when

said communication terminal apparatus carries out

communication.

25   20. The communication control method according to

claim 19, wherein the operation control unit belonging to

said lower layer controls so that availability information

is notified to said operation control unit belonging to

said predetermined layer, said information indicating

5   whether it is possible or not to utilize each of said

plurality of processing units belonging to said lower layer.

21. The communication control method according to

claim 20, wherein said operation control unit belonging to

10   said predetermined layer controls so that notification of

said availability information is requested to said

operation control unit belonging to said lower layer.

22. The communication control method according to

15   claim 20, wherein said operation control unit belonging to

said predetermined layer stores said availability

information to predetermined information storage means.

23. The communication control method according to

20   claim 20, wherein said operation control unit belonging to

said predetermined layer refers to said availability

information and controls selective utilization of one or

more of said available processing units belonging to said

lower layer by the processing unit belonging to said

25   predetermined layer when said availability information is

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notified from said operation control unit belonging to said lower layer.

24. The communication control method according to claim 20, wherein said operation control unit belonging to said predetermined layer controls so that said availability information is notified to the operation control unit belonging to a upper layer of said predetermine layer.

25. The communication control method according to claim 24, wherein said processing unit belonging to said predetermined layer divides said one data supplied from the processing unit belonging to said upper layer and controls so that a plurality of data after dividing is selectively supplied to said plurality of processing units belonging to said lower layer.

26. The communication control method according to claim 25, wherein said operation control unit belonging to said predetermined layer controls a distribution ratio of a plurality of data after said dividing to be supplied to one or more available processing units belonging to said lower layer by said processing unit of said predetermined layer.

27. The communication control method according to

claim 19, wherein said operation control unit belonging to said lower layer notifies, to said operation control unit belonging to said predetermined layer, availability information to indicate whether it is possible or not to

5   use each of said plurality of processing units belonging to said lower layer, band information to indicate a band securable in communication using each of said plurality of processing units belonging to said lower layer, and route information to indicate connection target connectable in

10   the communication using each of said plurality of processing units belonging to said lower layer when said processing unit is available.

     28.   The communication control method according to

15   claim 27, wherein said operation control unit belonging to said predetermined layer controls so that notification of said band information and/or said route information is requested in addition to said availability information to said operation control unit belonging to said lower layer.

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     29.   The communication control method according to claim 27, wherein said operation control unit belonging to said predetermined layer stores said band information and/or said route information in addition to said

25   availability information to predetermined information

storage means.

30.   The communication control method according to
claim 27, wherein said operation control unit belonging to
said predetermined layer controls selective utilization of
one or more of said available processing units belonging to
said lower layer by said processing unit belonging to said
predetermined layer by referring to said band information
and/or said route information in addition to said
availability information when said availability information
is notified from said operation control unit belonging to
said lower layer.

31.   The communication control method according to
claim 27, wherein said operation control unit belonging to
said predetermined layer controls so that said band
information and/or said route information is notified in
addition to said availability information to the operation
control unit belonging to a upper layer of said
predetermined layer.

32.   The communication control method according to
claim 31, wherein said processing unit belonging to said
predetermined layer divides said one data supplied from the
processing unit belonging to said upper layer and controls

so that a plurality of data after said dividing is selectively supplied to said plurality of processing units belonging to said lower layer.

5   33. The communication control method according to claim 32, wherein said operation control unit belonging to said predetermined layer refers to said band information and/or said route information and controls distribution ratio of a plurality of data after said dividing supplied

10   to one or more available processing units belonging to said lower layer by said processing unit of said predetermined layer.

34. The communication control method according to

15   claim 24 or 31, wherein said processing unit belonging to said predetermined layer unifies said plurality of data supplied from said plurality of processing units belonging to said lower layer and controls so that one data after said dividing is supplied to said processing unit belonging

20   to said upper layer.

35. The communication control method according to claim 34, wherein said operation control unit belonging to said predetermined layer controls sequence of a plurality

25   of data after said dividing as outputted from the

processing unit belonging to said predetermined layer or

controls sequence of a plurality of data from said lower

layer unified by said processing unit belonging to said

predetermined layer.

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36. The communication control method according to

claim 19, wherein said predetermined layer is one or more

selected from a data link layer of the layer 2 defined in

an OSI reference model, a network layer of the layer 3, a

10   transport layer of the layer 4, a session layer of the

layer 5, and a presentation layer of the layer 6.